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UKERC

Energy policy and investment in new technologies

Prof Robert Gross

Director

UK Energy Research Centre

Overview of presentation

1. Introduction to energy policy interventions
2. UK policy and global context
3. Policy controversies leading up to Review of Electricity Market Arrangements (REMA)
4. Issues with REMA
5. Conclusions

Closed consultation

Review of electricity market arrangements

From: Department for Business, Energy & Industrial Strategy

Published 18 July 2022

Policy paper

British energy security strategy

Updated 7 April 2022

UK Context 1: Policy ambitions for net zero and the energy crisis

- Net zero and the 6th carbon budget
  - Setting very ambitious goals for the power sector in particular
- 10 point plan for a green industrial revolution
  - Includes a 40 GW target for offshore wind alone
- The Energy White Paper
  - Launches consultation on long term changes to support schemes for renewables
- British Energy Security Strategy – responds to rising prices due to war in Ukraine
- Review of Energy Market Arrangements – seeks to ensure long-term goals are met

Energy Security Bill – aims to tackle short term crisis

UK Context 2 – very large expansion of renewables to meet goals

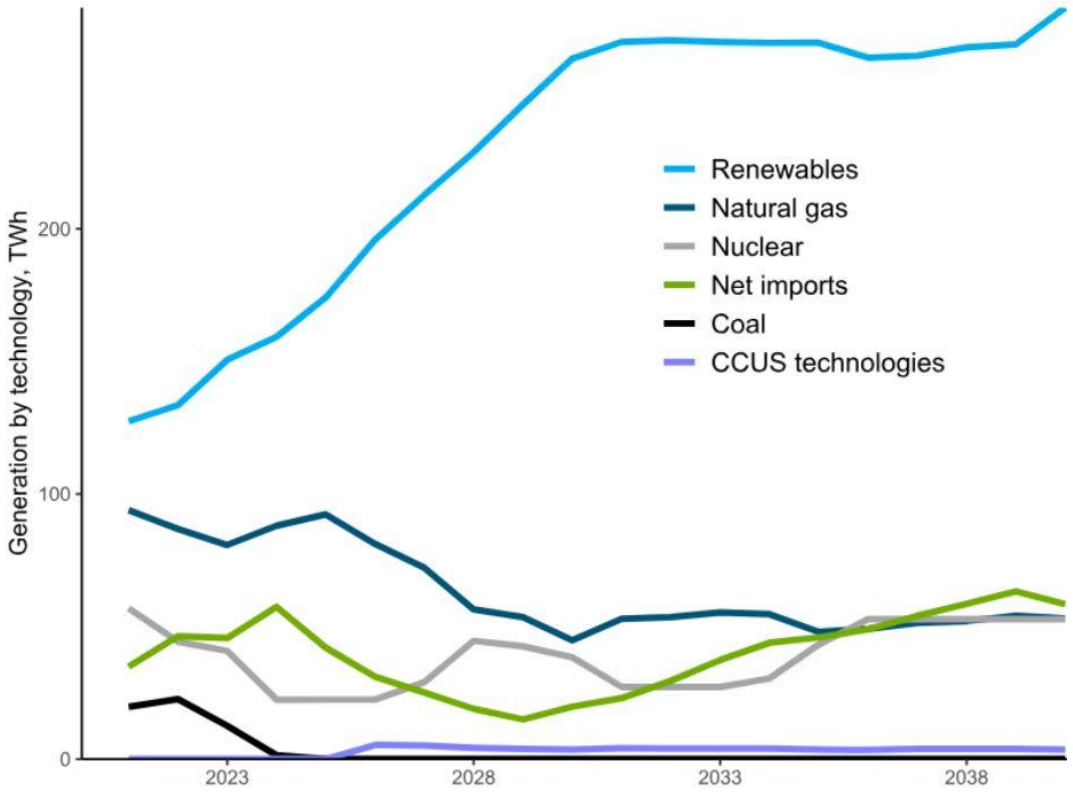
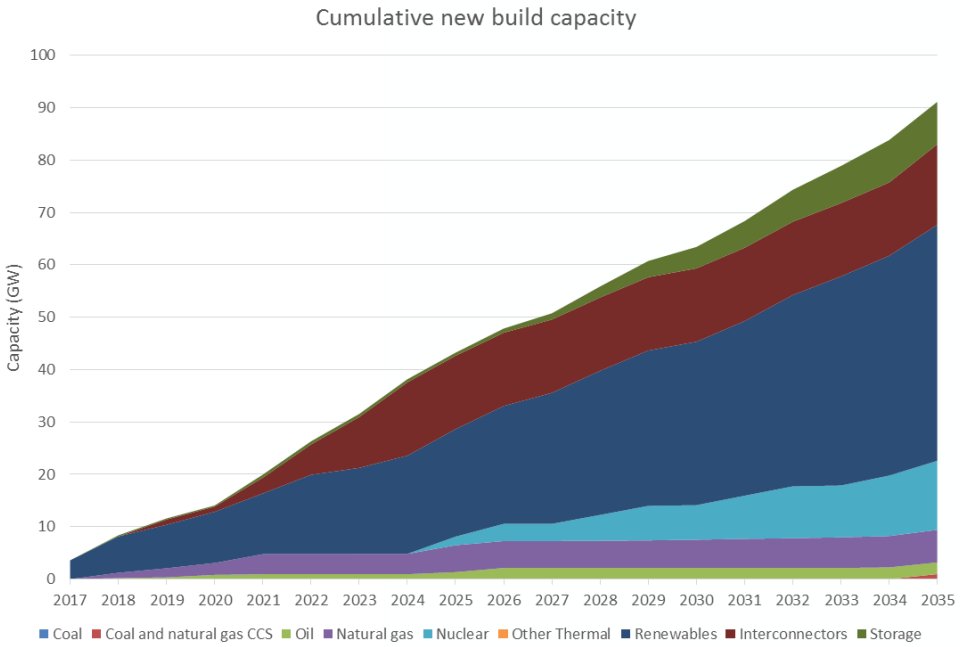


Figure 4.1: Electricity generation by fuel source, TWh

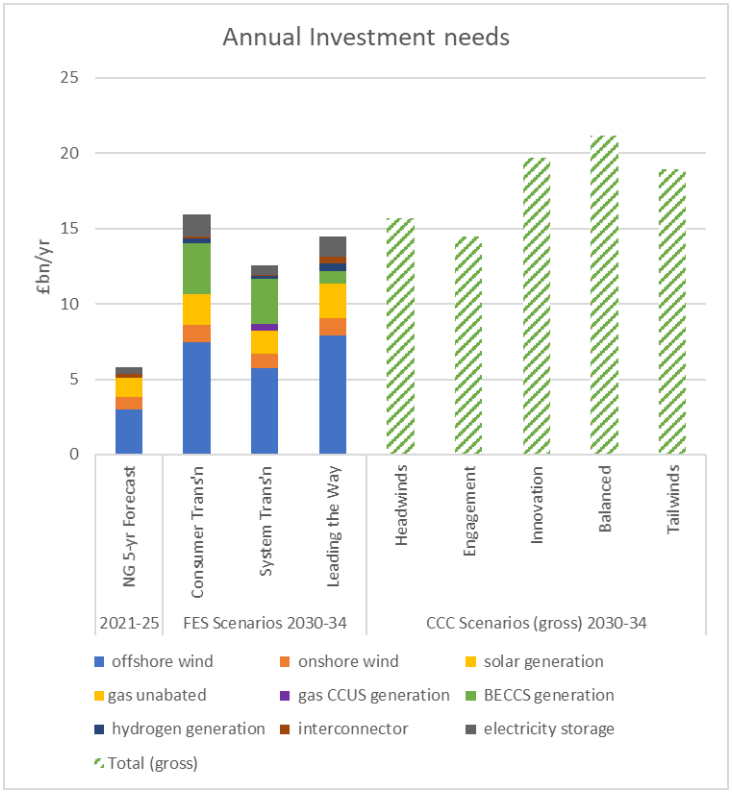
From BEIS Updated Energy & Emissions Projections (2022)

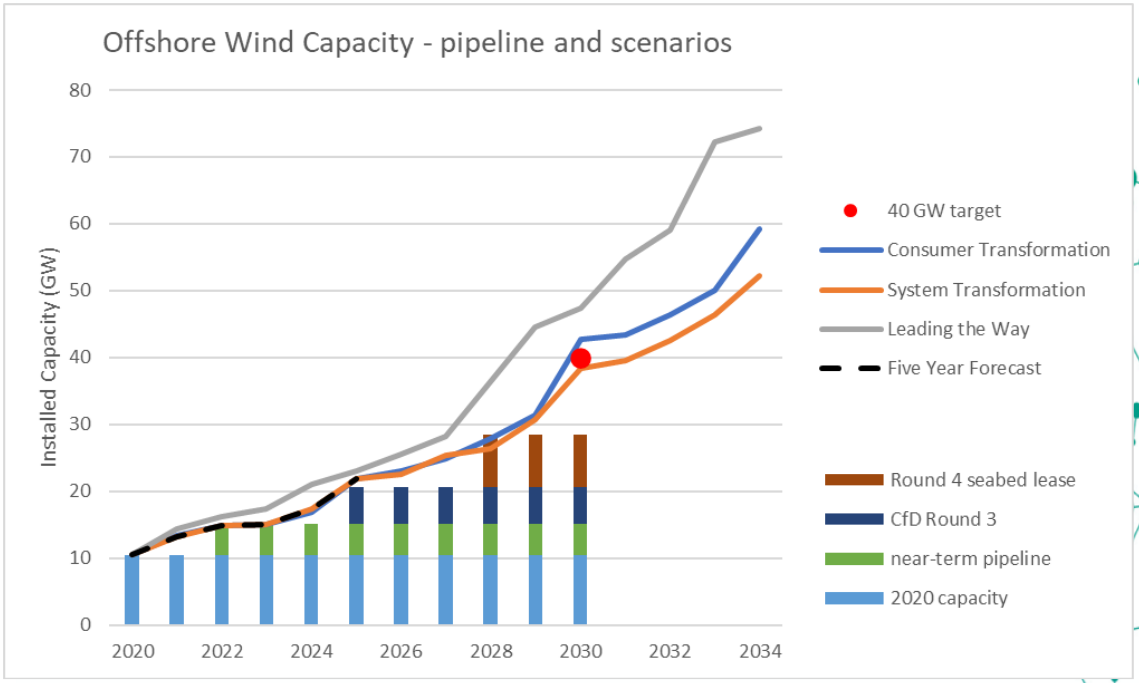
UK Context 2a – the volume of build out is huge: a major infrastructure project



From BEIS Updated Energy & Emissions Projections (2018)

Investment context

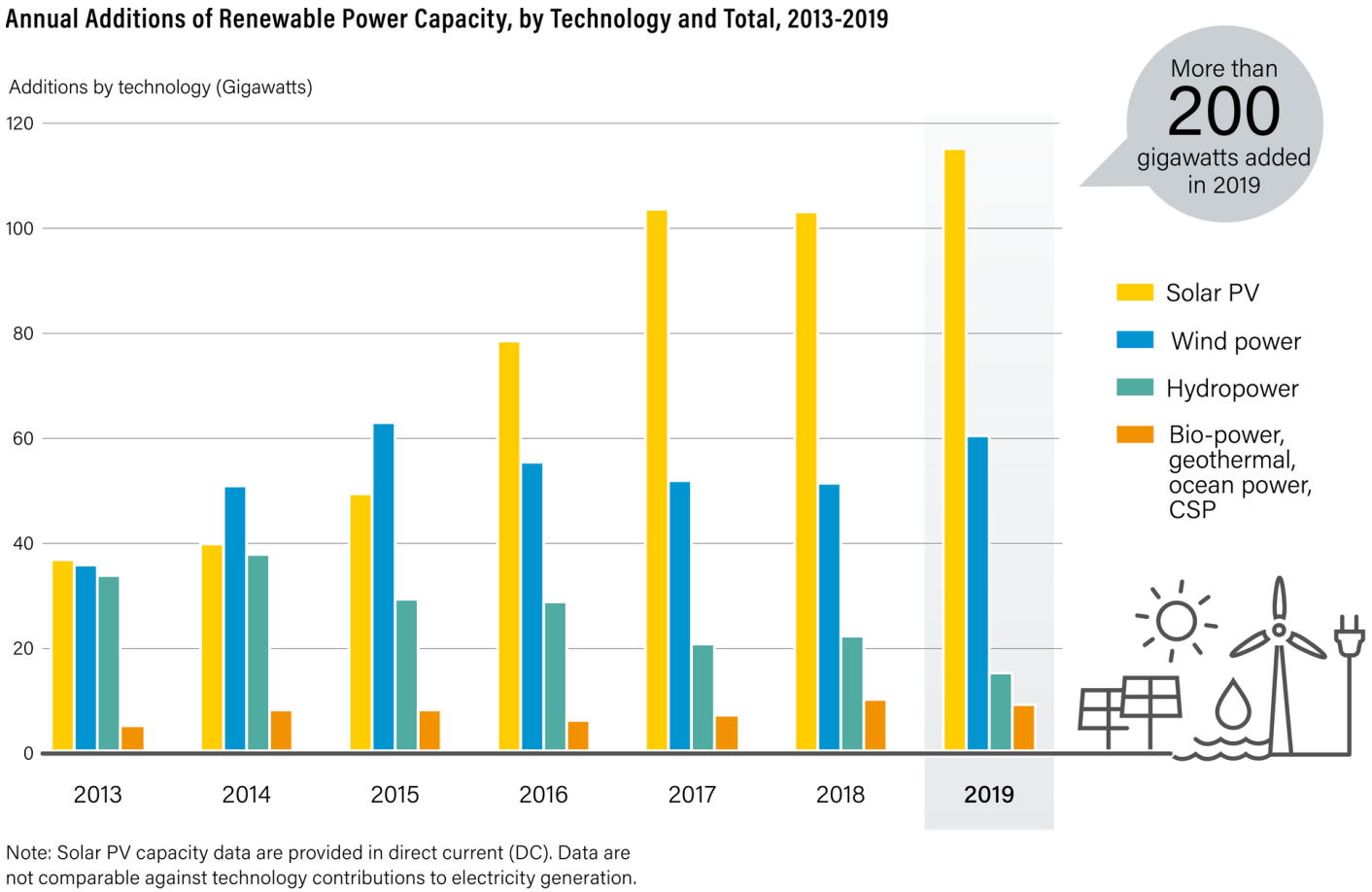




https://ukerc.ac.uk/publications/zero-carbon-electricity/

@UKERCHQ

The UK has been part of huge global growth in clean energy



http://www.ren21.net/

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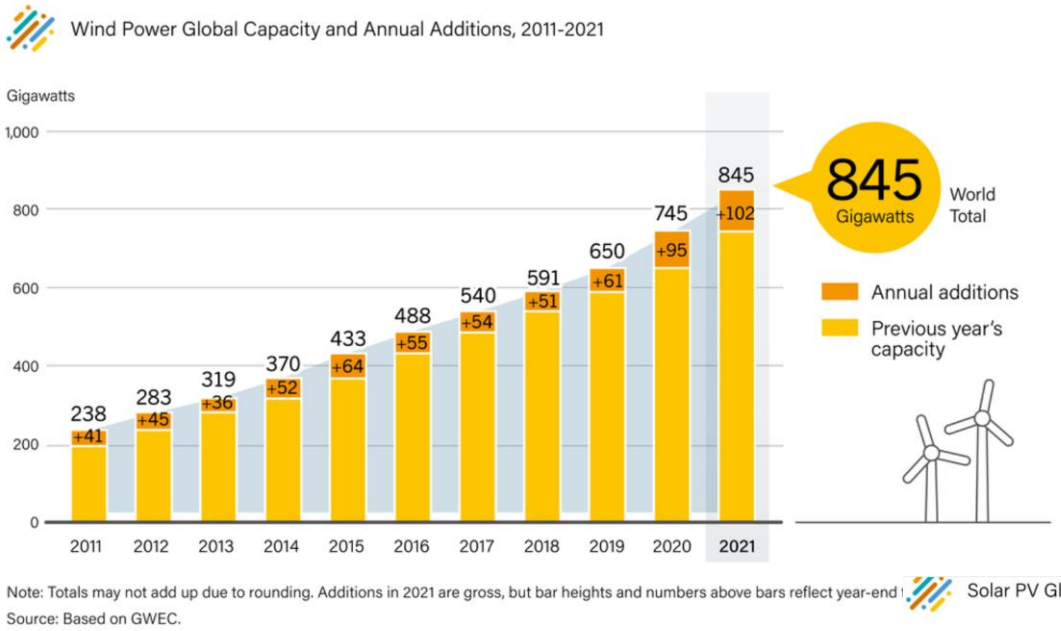
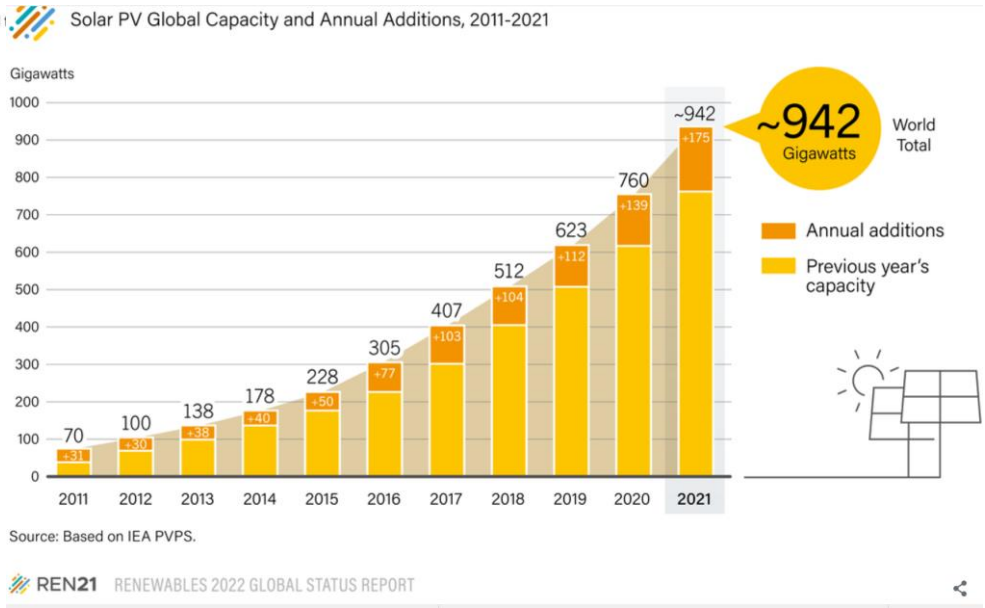
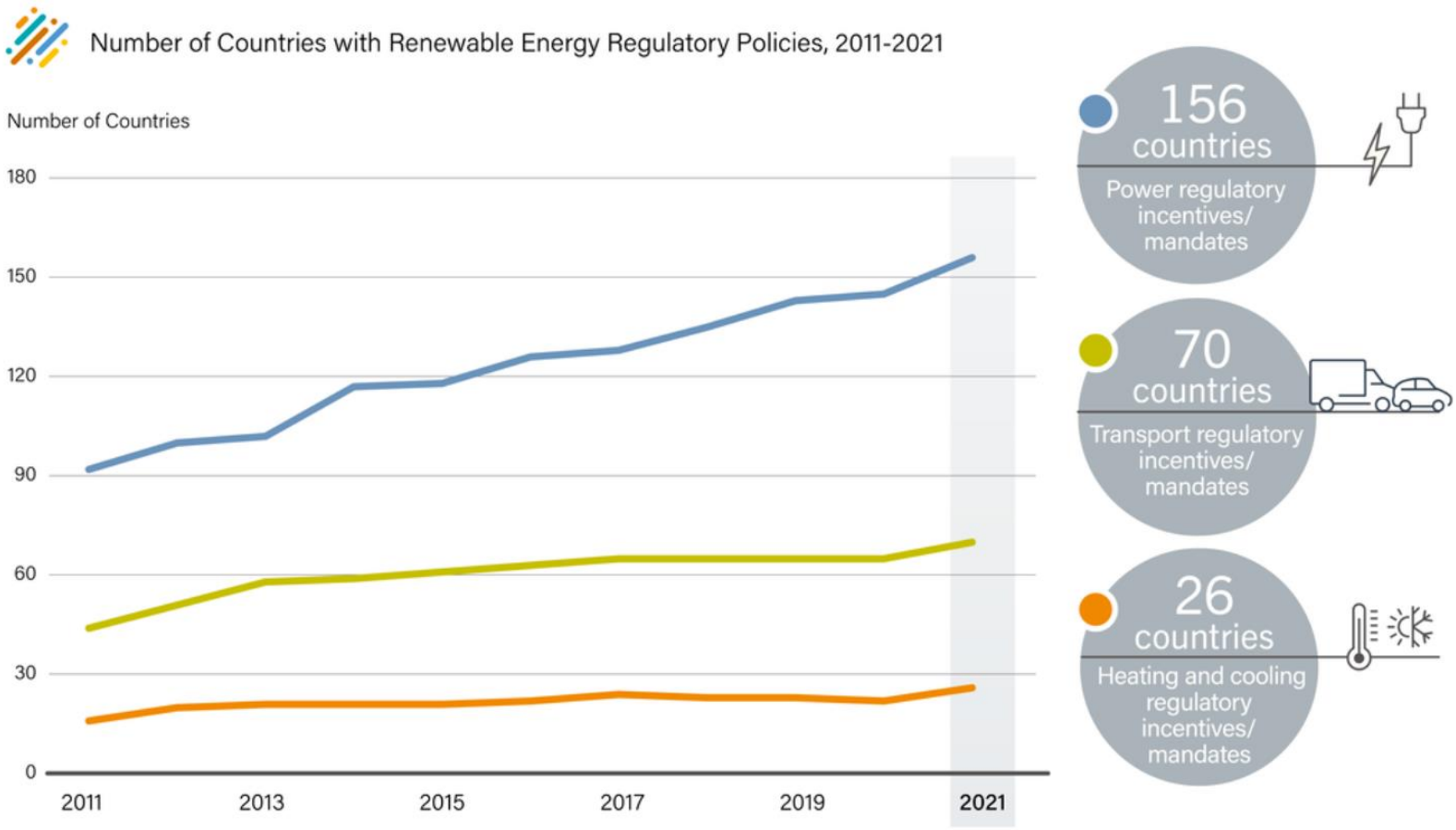
A huge growth in wind and solar power





http://www.ren21.net/

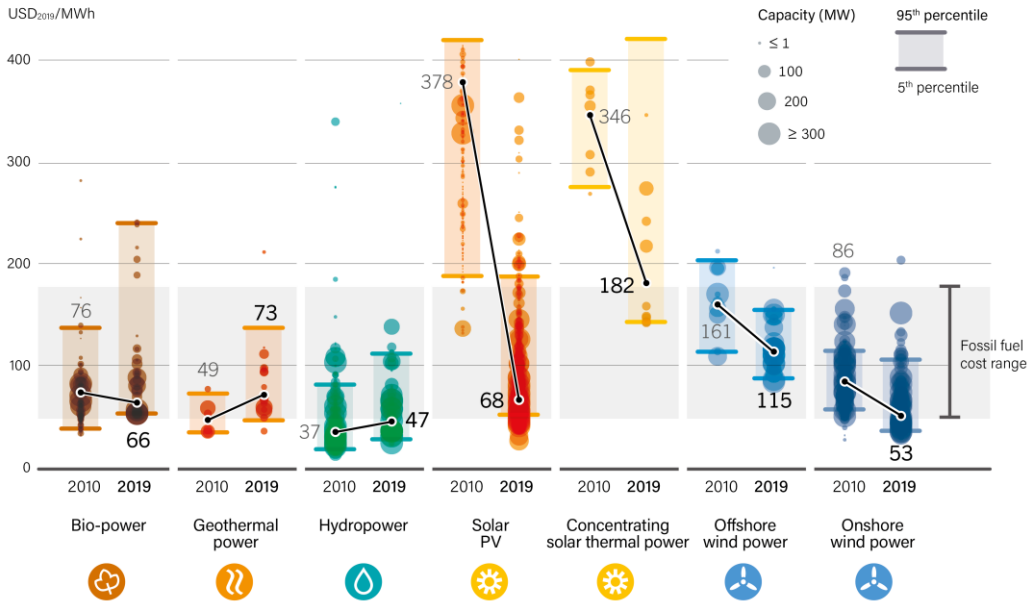
This is a policy driven phenomenon



Note: The figure does not show all policy types in use. In many cases countries have enacted additional fiscal incentives or public finance mechanisms to support renewable energy. A country is considered to have a policy (and is counted a single time) when it has at least one national or state/provincial-level policy in place. Power policies include feed-in tariffs (FITs) / feed-in premiums, tendering, net metering and renewable portfolio standards. Heating and cooling policies include solar heat obligations, technology-neutral renewable heat obligations and renewable heat FITs. Transport policies include biodiesel obligations/mandates, ethanol obligations/mandates and non-blend mandates.

Falling costs of electricity very significant for wind and solar

Global Levelised Cost of Electricity from Newly Commissioned, Utility-scale Renewable Power Generation Technologies, 2010 and 2019



Note: These data are for the year of commissioning. The diameter of the circle represents the size of the project, with its centre being the value for the cost of each project on the y-axis. The thick lines are the global weighted average LCOE value for plants commissioned in each year. The single band represents the fossil fuel-fired power generation cost range, while the bands for each technology and year represent the 5th and 95th percentile bands for renewable projects.

Source: IRENA.

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Feed in tariffs have been hugely important in driving investment

Number of Countries with Renewable Energy Policies, by Type, 2011–Early 2015

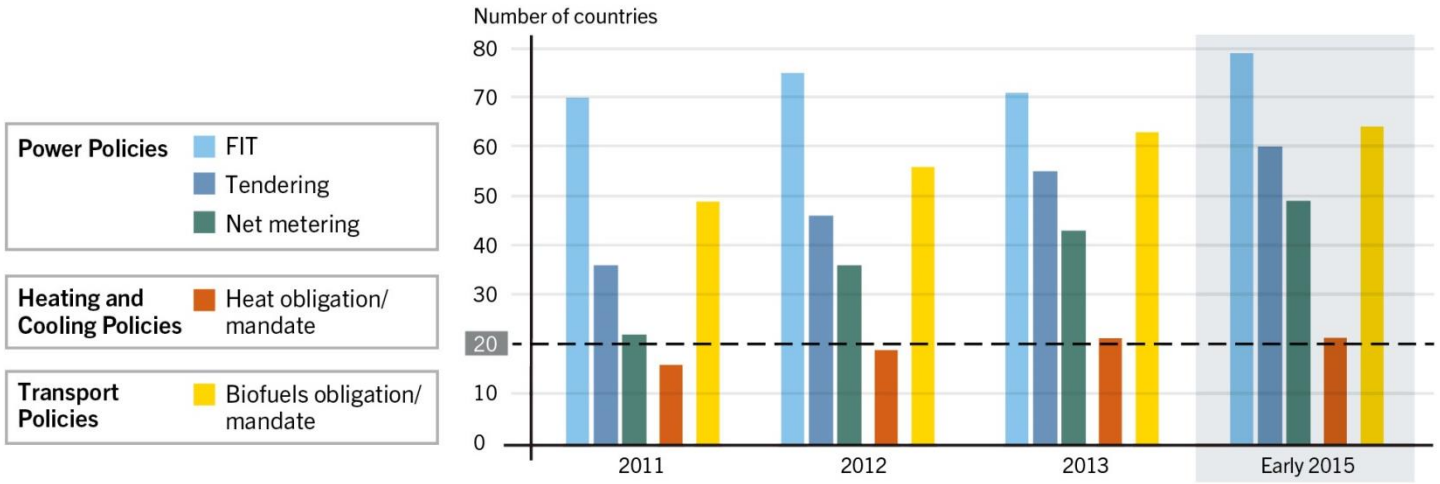
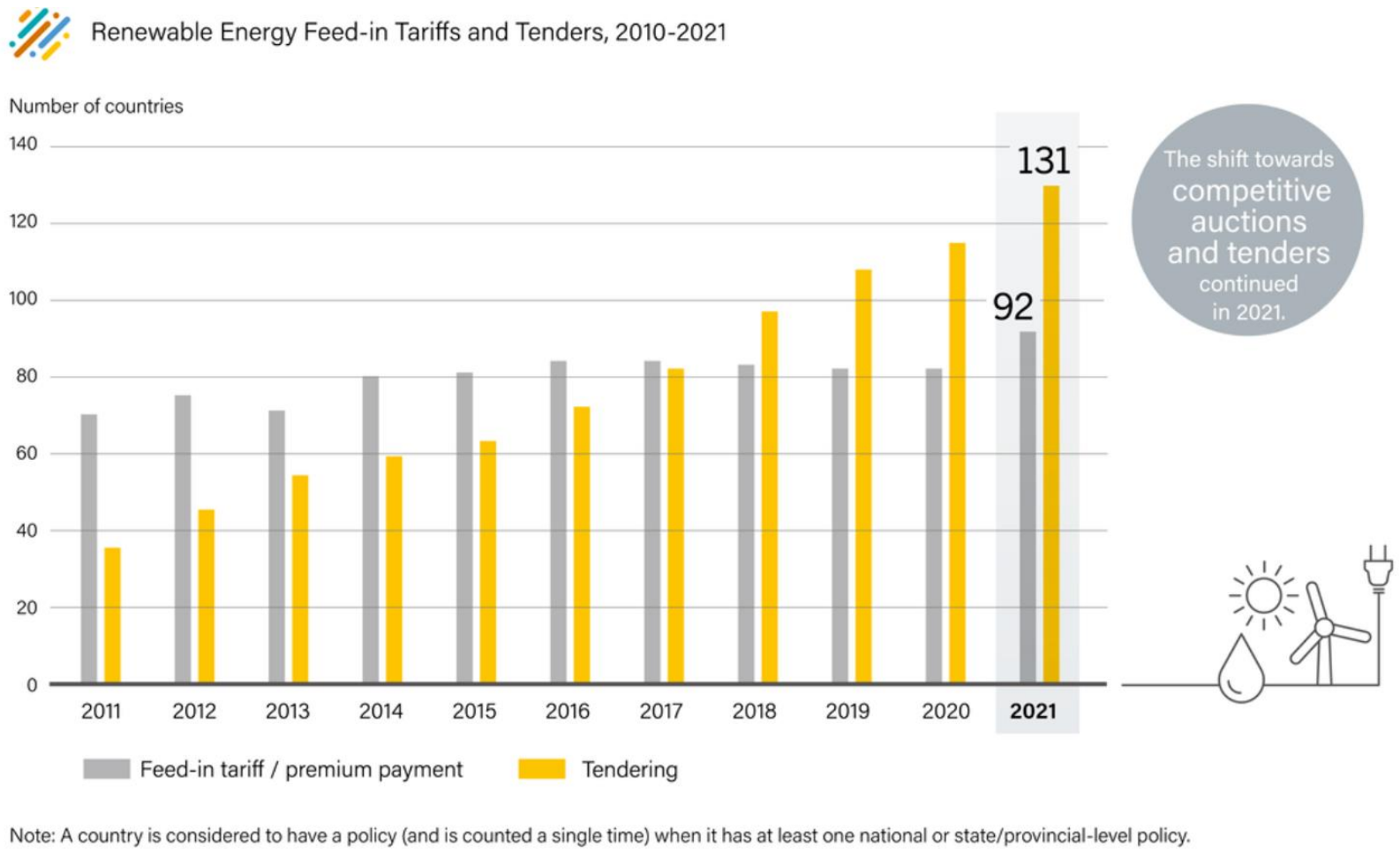


Figure does not show all policy types in use.
Countries are considered to have policies when at least one national or state/provincial-level policy is in place.

REN21 *Renewables 2015 Global Status Report*

REN21 Renewable Energy Policy Network for the 21st Century

The use of auctions to set (fixed $/MWh) prices has been increasing rapidly



Note: A country is considered to have a policy (and is counted a single time) when it has at least one national or state/provincial-level policy.

Policy in the UK power sector – 2 minute history

- 1900s – private competitive – tending to local monopoly businesses with increasing regulation of and municipal involvement in 'natural monopoly'
- 1950s to 90s – nationalised industry – economies of scale
- 1990s – competition, liberalisation – dash for gas
- 2000s – climate change programme and Renewables Obligation
- 2008 Climate Change Act 80% target plus EU Renewables Directive 2020 target
- 2014 – Electricity market reform creates capacity market, contract for difference, emissions performance standard and carbon floor price – increases intervention/control/'interference'

- 2015 on – auctions see very low prices for capacity, sharp falls in prices for wind solar
- 2015 'reset' cuts support for many options
- BREXIT- 2017 'Clean growth strategy'
- 2019 net zero target approved
- 2020 6th carbon budget
- 2021 net zero strategies
- 2022 energy crisis responses, price support etc

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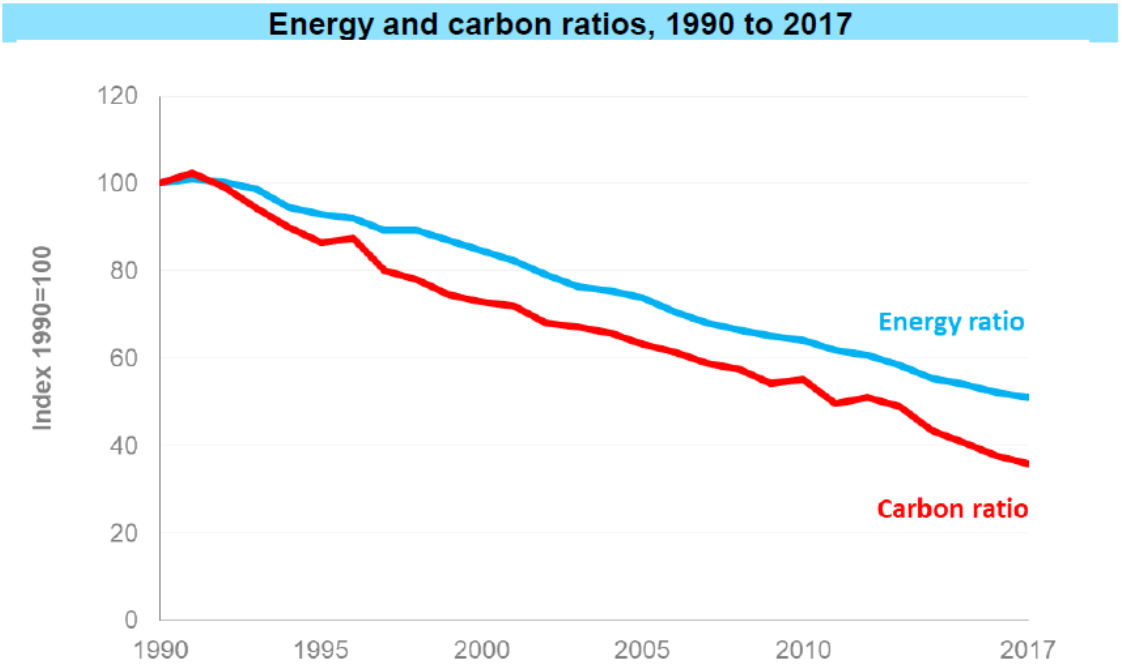
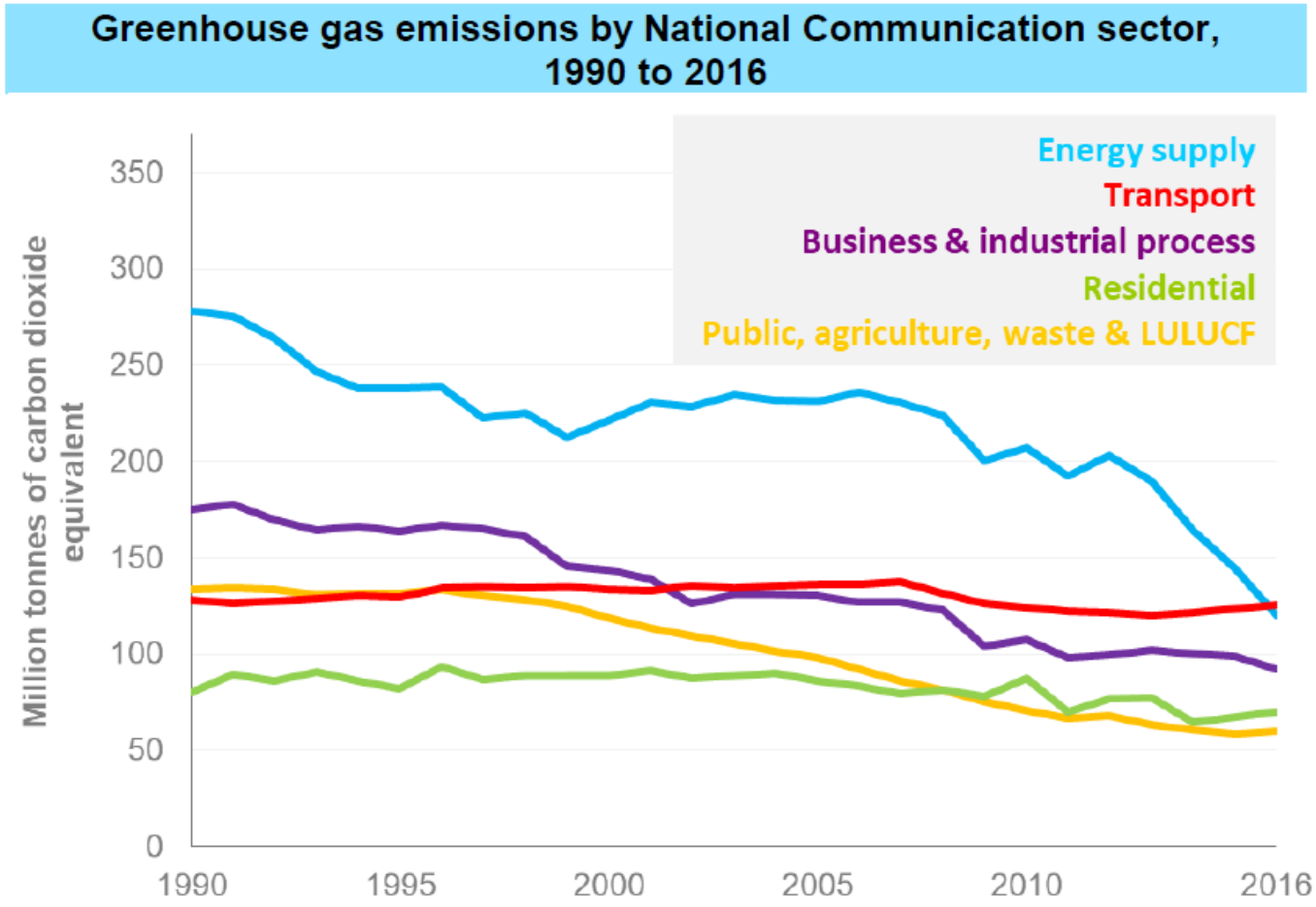
UK as a CO2 success story…



	Index 1990=100				
	1990	**2000**	**2010**	**2016**	**2017**
Primary energy consumption*	100	108.4	96.4	88.3	88.1
Carbon dioxide emissions	100	93.2	82.9	63.8	61.8
GDP	100	127.9	150.1	169.4	172.2
Energy ratio	**100**	**84.8**	**64.3**	**52.1**	**51.1**
Carbon ratio	**100**	**72.9**	**55.3**	**37.7**	**35.9**

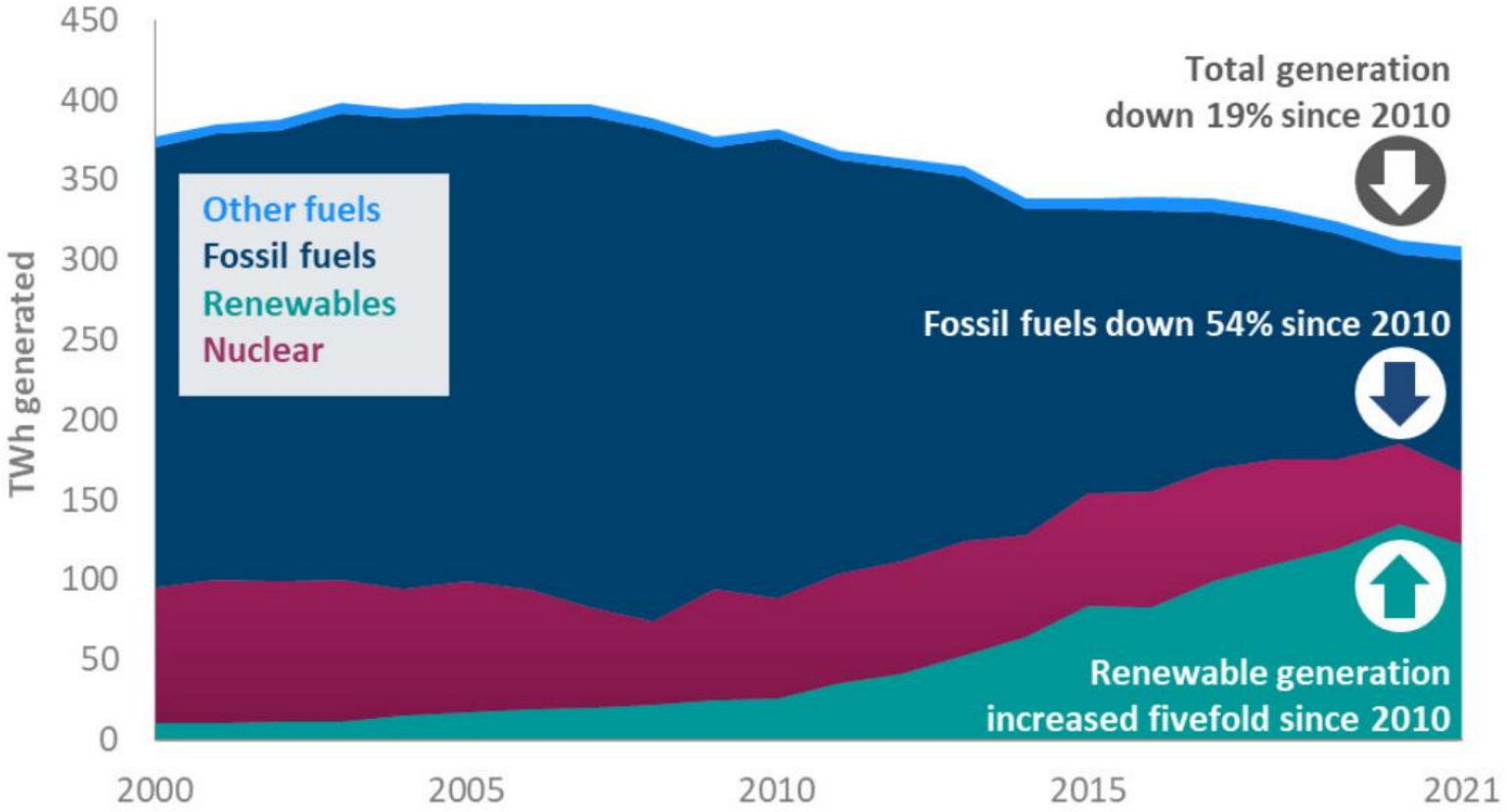
https://www.gov.uk/government/statistics/uk-energy-in-brief-2019

Mainly driven by power sector



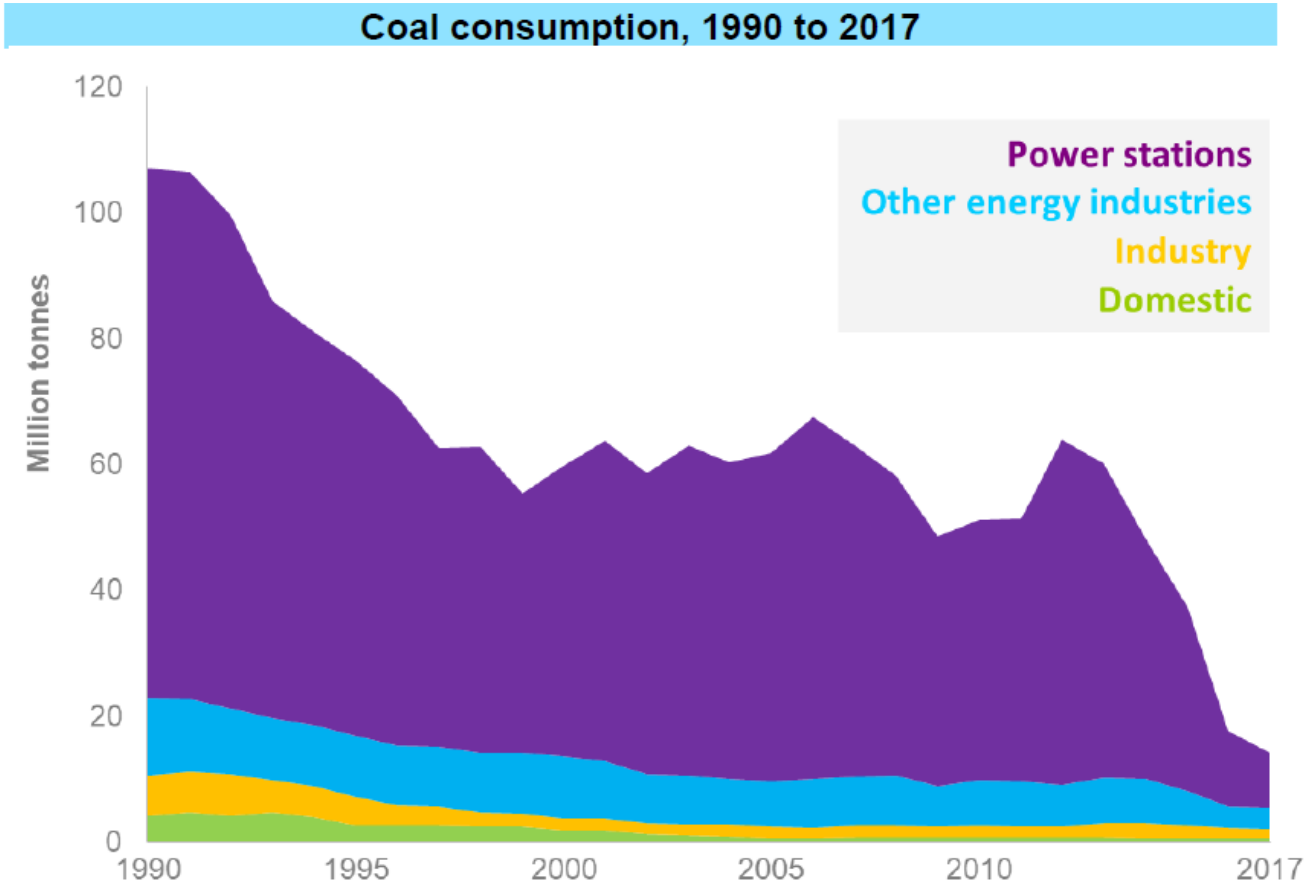
https://www.gov.uk/government/statistics/uk-energy-in-brief-2019

Increasing role of renewables and overall reduction in demand



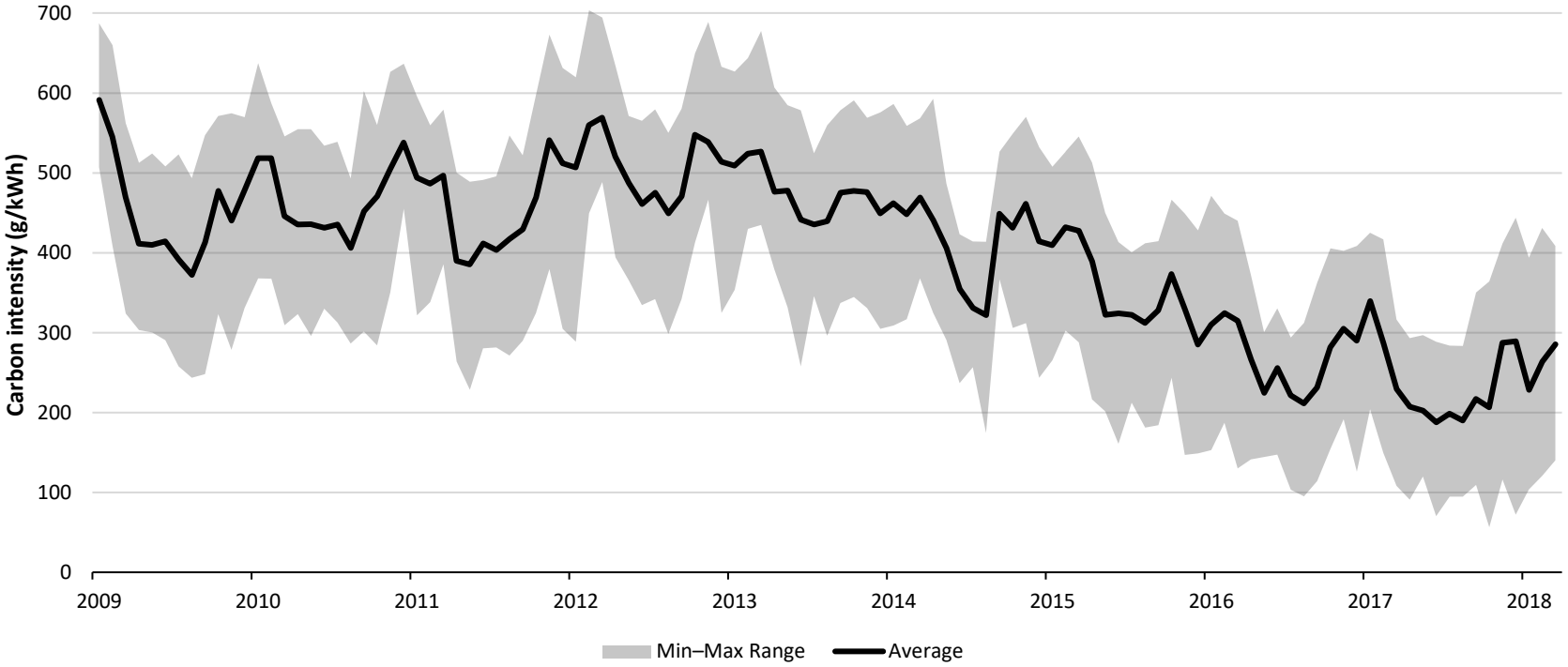
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1094628/DUKES_2022_Chapter_5.pdf

And coal's decline



https://www.gov.uk/government/statistics/uk-energy-in-brief-2019

Power sector emissions down from 510 g to 193 g /kWh



www.electricinsights.co.uk

Privatisation and liberalisation GB power market, 1989-present

Pre 1989
State owned CEGB and regional electricity companies

Dispatch optimised on merit order – lowest marginal cost runs first

Power mix mainly coal (80%) and nuclear (20%)

Some hydro
Some oil
No other RE

1989/90
Electricity Act: Liberalisation & start of Privatisation
The "Pool" central buyer and two main companies (running coal)

National Grid dispatches according to bid prices

Some hydro
Some oil
No other RE

1990-2000
Gradual opening of competition in supply

Investment by new entrants and regional electricity cos
Leads to the dash for gas

Nuclear part privatised

Creation of Non-Fossil Fuel Obligation (NFFO) – designed to support nuclear but open to renewables

First wind farms constructed (Delabole 1991)

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The evolution of the market, 1989-present

2001
NETA: New Electricity Trading Arrangements

bilateral trading England and Wales

Creation of Renewables Obligation (RO) – tradable certificates plus target on suppliers

Growth in wind and landfill gas plus some small hydro

2005 - 2014
BETTA: British Electricity Transmission & Trading Arrangements

Various changes to rules for bilateral trading + Scotland

Many changes to workings and ambition of RO – eg banding

Creation of micro-gen FiT

Huge expansion of wind, then offshore wind and solar

2014
Electricity Market Reform

bilateral trading + capacity markets + CfDs

Opens support/subsidy to new nuclear

Emission performance standard

(more later)

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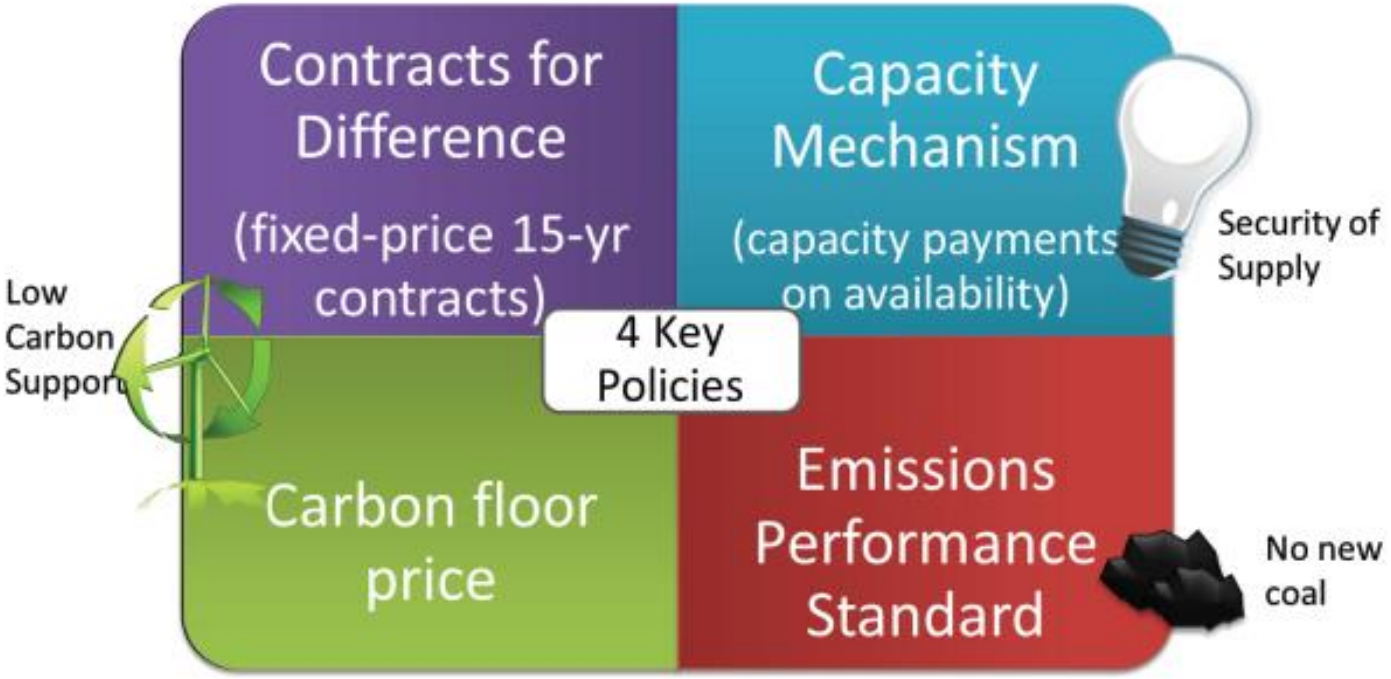
Key Points

- Generation is competitive – independent generators and large integrated companies sell power to suppliers
- Supply is also competitive – suppliers buy electricity from generators and sell it to consumers
- Large companies do both
- Electricity is sold via bilateral contracts between generators and supplies
- And via power exchanges
- National Grid (the System Operator) takes actions in the market to ensure supply and demand are always balanced
- National Grid and Distribution Network Operators also invest in power lines. They are regulated by the Regulator, Ofgem
- Government sets the overall framework for markets and regulated companies
- Government also provides incentives and obligations related to low carbon and to ensure security of supply

Energy Act 2013
Electricity market reform



Grubb and Newbery, 2018, UK Electricity market reform and the energy transition; emerging lessons MIT CEEPR Working paper

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- British policymakers chose a 4 part approach

- Underscore what was then a weak EU ETS carbon price
  - This helped to make it cheaper to burn gas than coal

- Provide long run fixed price contracts for all low carbon generators
  - Important to note this included nuclear power
  - Only one nuclear plant made it to construction but bid prices for renewables fell

- Introduce a capacity market to ensure enough new capacity to meet peak demand
  - This had unexpected consequences. The price was very low. It mainly went to smaller decentralised generators

- Create an emissions performance standard that in effect bans new coal
  - In hindsight this seems quite pointless because no one wanted to anyway!

What is a CfD?

Absorb fluctuations in wholesale price – contract for difference (CfD)

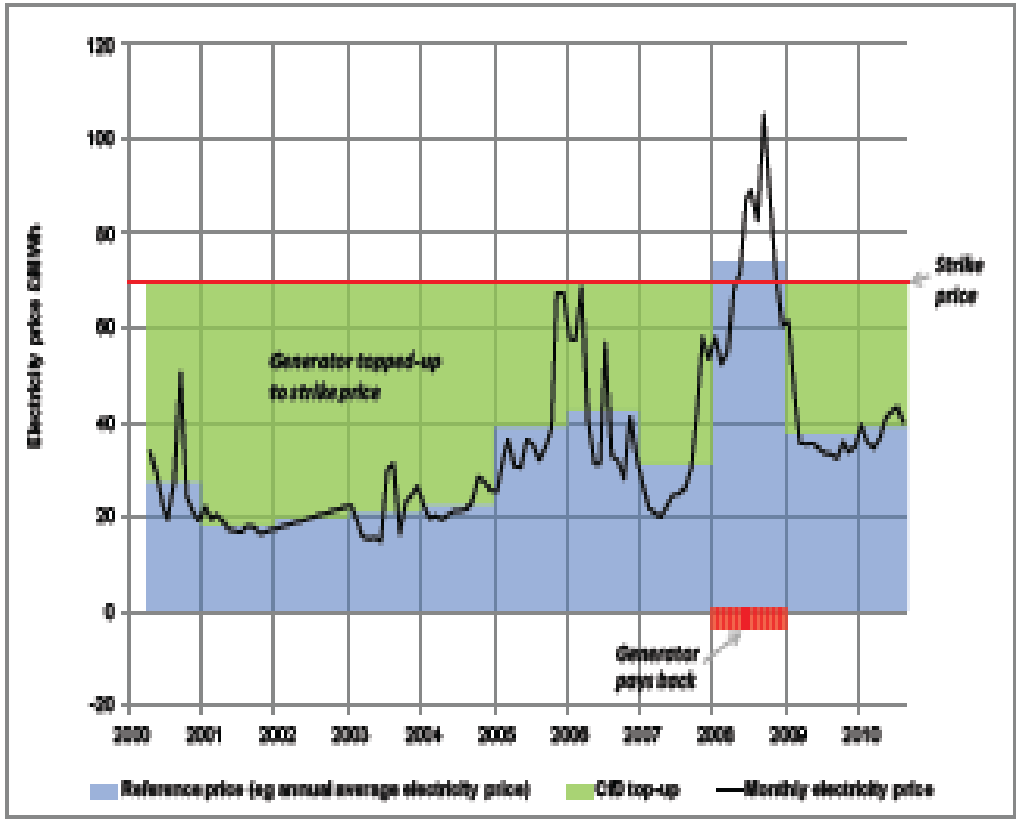
- Low risk, some market signals

The LCCC provides a credible counterparty

Prices are set through an auction

Strike prices are now well below wholesale price

BUT – also removes most of the time of day price signals the market would otherwise send



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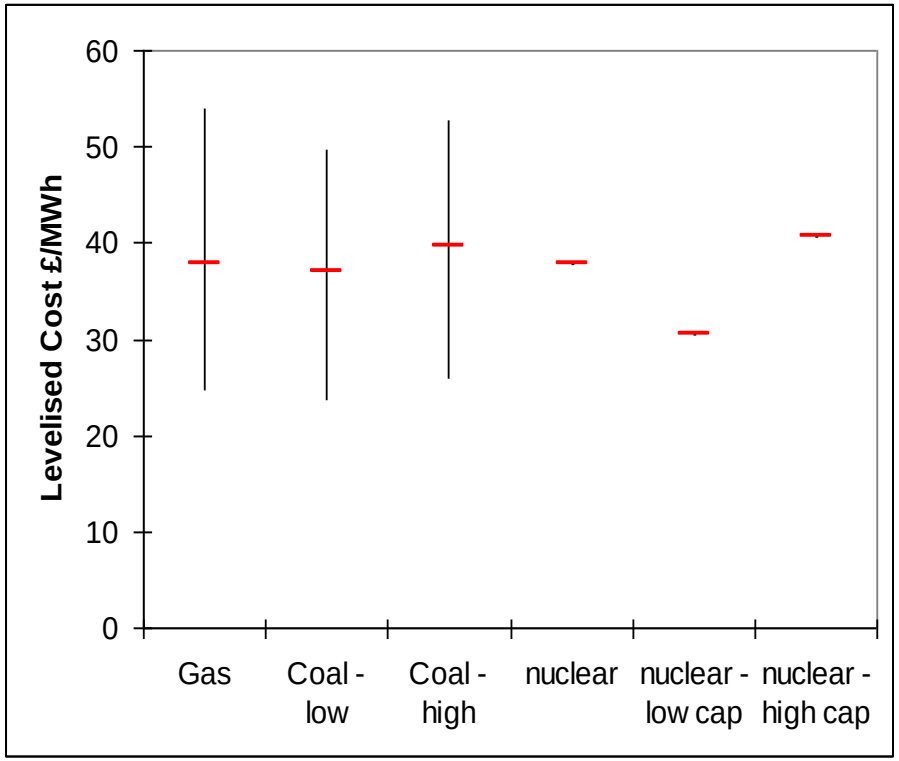
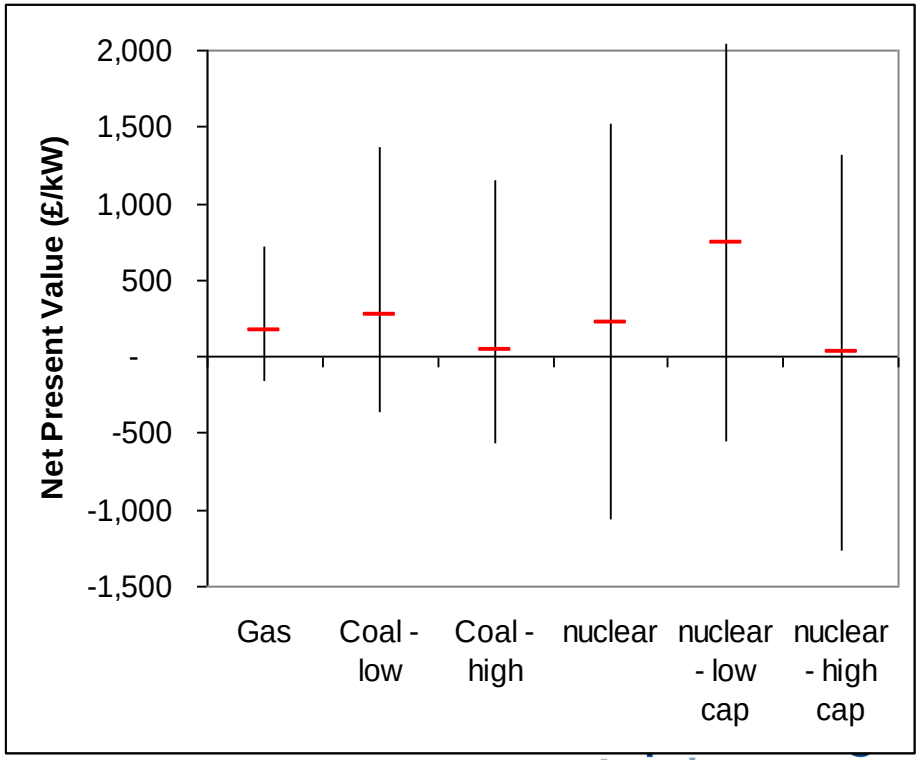
The main purpose of CfDs – to de-risk investment in high cost assets

How much it COSTS to make power is different from how RISKY it is to invest

Spread in levelised costs arising from different CO2 and fuel price scenarios (taken from UK Energy Review) (Working Paper by Will Blyth 2006)



Net present value representation of the spread of returns arising from different CO2 and fuel price scenarios (taken from UK Energy Review) (Working Paper by Will Blyth for UKERC 2006)



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Planned administered strike prices (£/MWh, 2012 prices)

Technology	2014/15	2015/16	2016/17	2017/18	2018/19
Offshore Wind	155	155	150	140	135
Onshore Wind (>5MW)	100	100	100	95	95
Solar PV (>5MW)	125	125	120	115	110

	2023
Nuclear (Hinkley Point C)	89.50 or 92.50

DECC 2013, Consultation on the draft Electricity Market Reform Delivery Plan and 21st October Ed Davey Statement to Parliament

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Auctions drive down wind and solar prices

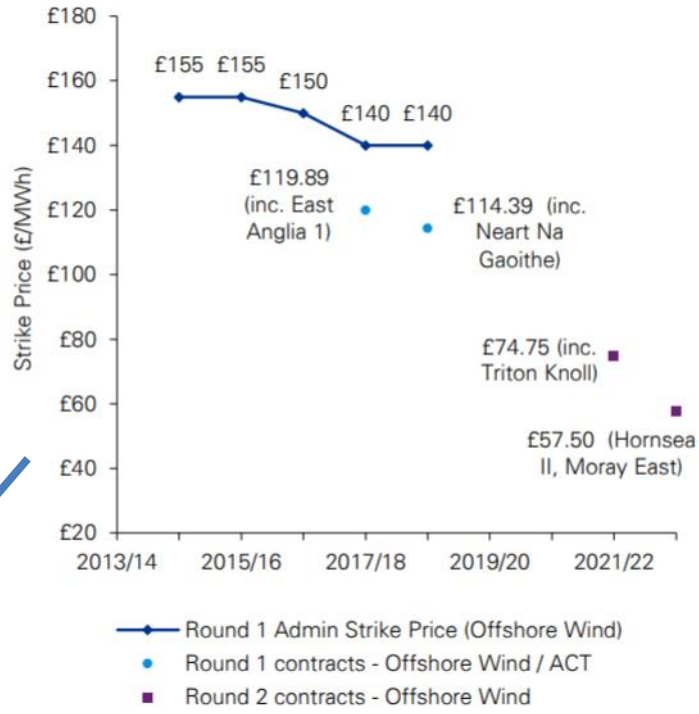
‘pot 1’ mature techs

	Capacity (MW)	Admin Strike price 2014 (£/MWh)	Lowest auction clearing price Jan 2015
Large solar PV	72	120	**79**
Onshore Wind	1162	95	**79**
Energy from Waste CHP	95	80	**80**
Offshore Wind	750	140	**114**
Advanced Conversion Technologies	62	140	**114**

Grubb and Newbery, 2018, UK Electricity market reform and the energy transition; emerging lessons, MIT CEEPR Working paper

Only ‘pot 2’ were run from 2015. until 2021

<u>2019 CfD auction cleared £39.65 MWh</u>



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Policy controversies since 2015

If EMR was working well what went wrong? Why do we have another White Paper consulting on changes?

2015 UK policy mix

- 2020 target of 15% RE plus carbon budgets
- 2050 carbon target
- RO – subsidy for large scale renewables
- Renewable Heat Obligation
- FiT – subsidy for small scale renewables
- CCS demonstration programme
- Green deal – energy efficiency 'pay as you save'
- Energy efficiency products policy
- CERT, CESP and ECC – energy efficiency obligations on suppliers
- Participation in the EU ETS

PLUS Electricity market reform policies (then new)

- Carbon floor price
- A fixed price premium or 'FiT' for ALL low carbon generation
- An emissions performance standard
- Capacity payments/mechanism to ensure security of supply

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Changes after the 2015 election

- 2020 target of 15% RE plus carbon budgets
- 2050 carbon target
- ~~RO – subsidy for large scale renewables~~ (transitioned to EMR but closed early to onshore wind and solar)
- Renewable Heat Obligation (future unclear)
- ~~FiT – subsidy for small scale renewables~~ (closed 2019)
- ~~CCS demonstration programme~~
- ~~Green deal – energy efficiency 'pay as you save'~~
- Energy efficiency products policy
- Energy efficiency obligations on suppliers (future uncertain)
- Participation in the EU ETS (probably over)
- Carbon floor price (frozen)
- CfD 'FiT' for low carbon generation (closed to onshore wind and solar)
- Hinkley nuclear goes ahead
- Emissions performance standard
- Capacity payments/mechanism to ensure security of supply

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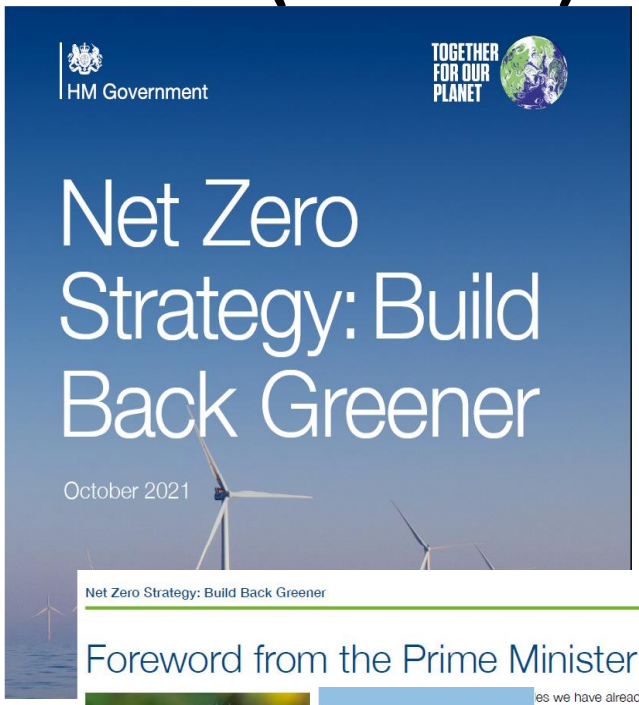
(some) recent developments




Net Zero Strategy: Build Back Greener

Foreword from the Prime Minister

...es we have already
...44 per cent - while
...over 75 per cent –
...our plan for going
...ll meet the global
...t with panicked,
...tive measures as
...l we will unleash the
...capitalism to drive
...ng down the costs
...ke net zero a net
...y, for the UK and for
...v we will make
...ove carbon from our
...ombustion engine
...t to phase out gas
...ut it also shows how we will do this fairly by making carbon-free alternatives cheaper. We will make sure what you pay for green, clean electricity is competitive with carbon-laden gas, and with most of our electricity coming from the wind farms of the North Sea or state-of-the-art British nuclear reactors we will reduce our vulnerability to sudden price rises caused by fluctuating international fossil fuel markets.

Our strategy for net zero is to lead the world in ending our contribution to climate change, while turning this mission into the greatest opportunity for jobs and prosperity for our country since the industrial revolution.

The United Kingdom is not afraid to lead the charge towards global net zero at COP26.

- A sector deal for offshore wind promises 30GW by 2030 and increased UK content
- Boris Johnson increases ambition to 40GW – then 50
- CfD reopens to onshore wind
- A £3bn Green Homes Grant scheme part of 2020 COVID recovery package then promptly scrapped
- Innovation funds for batteries, industrial decarbonisation, hydrogen and ‘benefitting from the energy revolution’
- UK co-hosted COP26
- Decarbonisation strategies – industry, transport, heat and buildings and overall net zero
- High wholesale prices lead to supplier insolvency
- Prospect of very high consumer prices leads to energy bills support scheme
- Energy Security Bill

Transparency data

Energy Bills Support Scheme GB: payments made by electricity suppliers to customers

Political implications


Net Zero Strategy: Build Back Greener

Foreword from the Prime Minister

MISSION ZERO
Independent Review of Net Zero
Rt Hon Chris Skidmore MP

Our strategy for net zero is to lead the world in ending our contribution to climate change, while turning this mission into the greatest opportunity for jobs and prosperity for our country since the industrial revolution.

how we will do this fairly by making carbon-free alternatives cheaper. We will make sure what you pay for green, clean electricity is competitive with carbon-laden gas, and with most of our electricity coming from the wind farms of the North Sea or state-of-the-art British nuclear reactors we will reduce our vulnerability to sudden price rises caused by fluctuating international fossil fuel markets.

The United Kingdom is not afraid to lead the

- 2015 ‘Green crap’ era is over, at least for now
- Widespread recognition that renewables and nuclear part of energy security strategy
- Skidmore review emphasises opportunities in green transition
- US Inflation Reduction Act makes it major feature of industrial policy
- Action in energy markets likely to reduce prices – break gas-link

Transparency data

Energy Bills Support Scheme GB: payments made by electricity suppliers to customers

What is the problem in the power market?

- Need to expand wind, solar and nuclear
- Risk of price cannibalisation with rising shares of renewables
- Incentives for flexibility are currently inadequate
- Rising costs of balancing and ancillary services
- Rising costs of curtailment due to network constraints
- ‘Political’ concerns about government deciding what gets built
- Break ‘ludicrous’ link between gas and power prices

In 2020 The Energy White Paper

- Launches consultation on long term changes to support schemes for renewables

Leading to Review of Electricity Market Arrangements

Closed consultation

Review of electricity market arrangements

From: Department for Business, Energy & Industrial Strategy

Published 18 July 2022

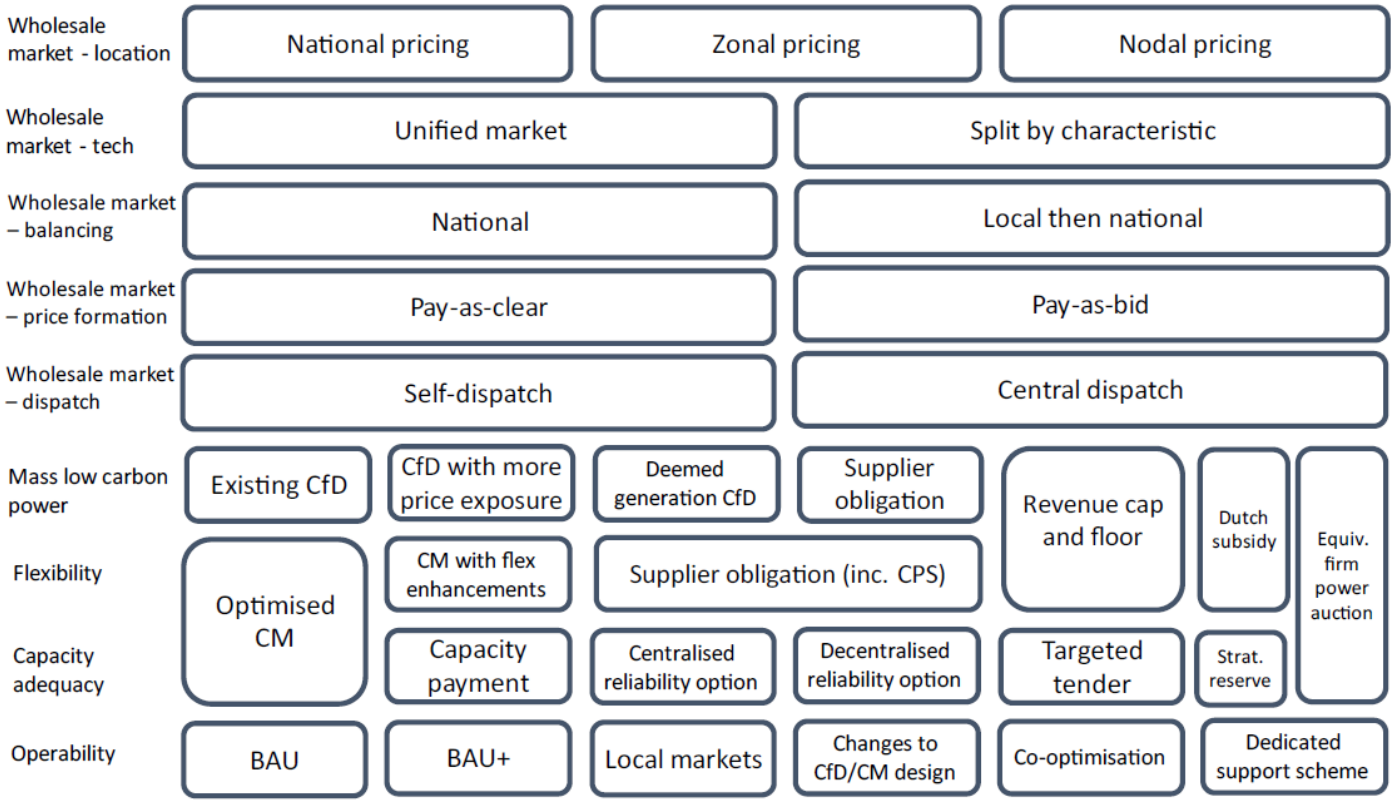


Figure 8 - options under consideration

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1098100/review-electricity-market-arrangements.pdf

Simplified this means

- Do we change the way we charge for network access?
- Create a ‘green pool’ for renewables that is a new separate market?
- Do more at a local level?
- Change who contracts with whom – away from generators selling to retailers and to a central buyer?
- Change the nature of incentives for green generation
- Change/add incentives for the provision of flexibility and reliability

- Fundamental issue – who is exposed to what risk?

REMA has created a market for reform ideas, but how likely is change?

Centrally planned, subsidised investment

"increased coordination" of asset and network development with build-out targets set and underwritten by government

Can these visions co-exist?

"Energy as a service" decarbonisation through obligation on suppliers who enter long-term contracts with generators and consumers

Fully liberalised, decentralised markets

Large, transmission-connected generation / storage assets

Small, distribution-connected or private wire generation, storage and DSR.

from lowcarboncontracts.uk

Parallel universes?

- Asset heavy
- Risk averse
- Regulated return
- Investor facing
- Large scale entities

- Asset light or asset free
- Risk management part of business model
- Market return
- Customer facing
- Small start ups

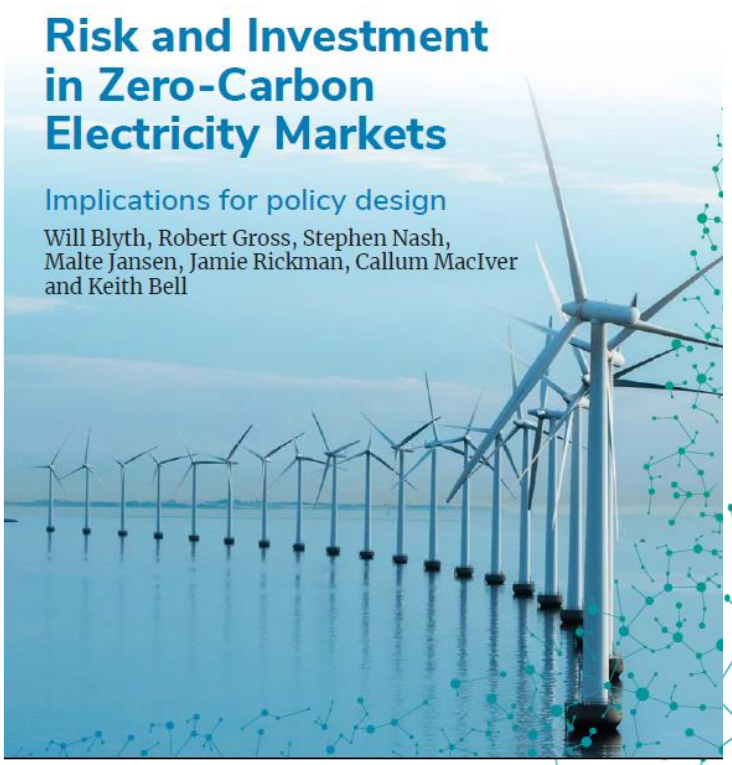
tion → retail

Financing requirements and risk

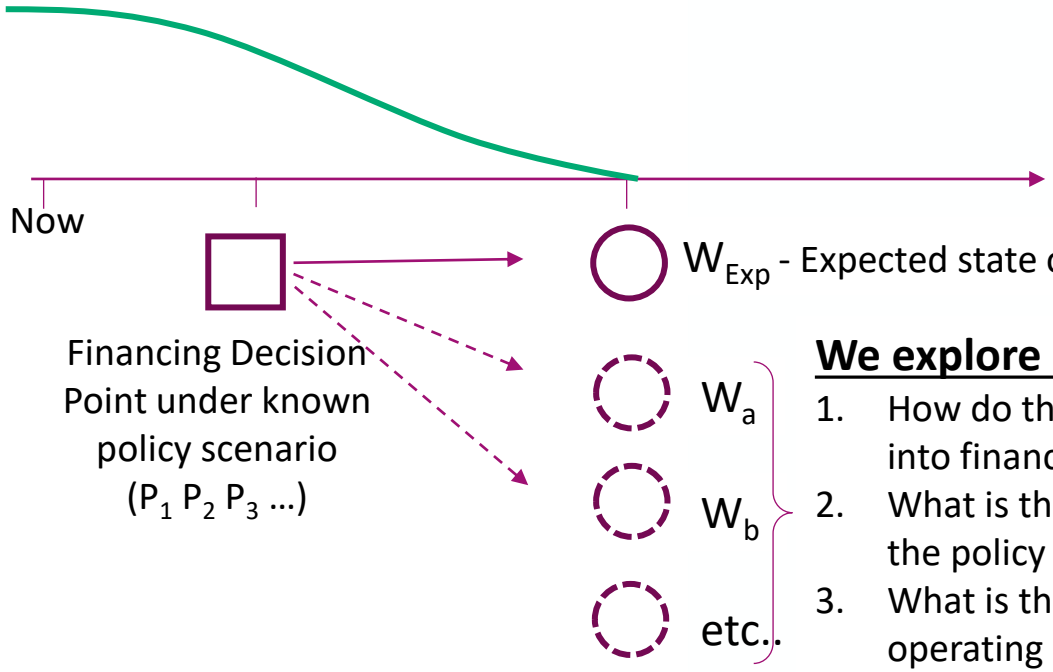
- Infrastructure assets – low risk, low return stable yield investments typically held by pension funds – large volume of potential capital available on global markets
- Renewable projects have become infrastructure asset class investments
- Investors are split on whether this will continue in the absence of ‘regulated’ returns through CfDs and FiTs
- Asset class a function of regulation and policy as well as technology maturity
- Riskier equity has expectation of higher return – also a smaller pool of capital
  - (Equity – at risk capital e.g. shares. Debt – capital not at risk e.g. a bank loan. Basically the higher the risk the higher the expected return on investment)
- Policy need is for attracting a large volume of capital not just low cost of capital

UKERC Working paper released at COP26

https://ukerc.ac.uk/publications/zero-carbon-electricity/



Framework for analysing investment risk in a period of system transition



We explore 3 Questions

1. How do these physical system variations translate into financial risk?
2. What is the exposure to these financial risks under the policy regimes (P_1 P_2 P_3 …)?
3. What is the implication for cost of capital of operating under different policy regimes (P_1 P_2 P_3 …)?

Different physical states of the world are treated as risk factors

Policy design options

CFD/Contracted revenue

- As per original CfD: No negative price rule
- As now: Negative price rule means no generation when prices negative
- Price floor – one way CfD

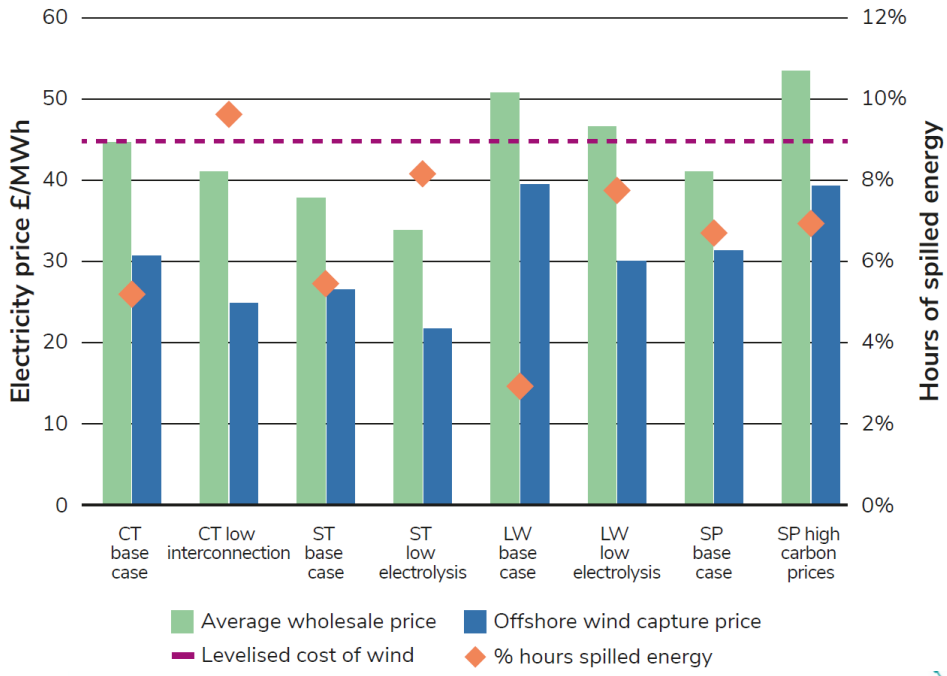
Market options/wholesale prices with obligation/subsidy

- Wholesale price + fixed premium
- Wholesale price + variable premium

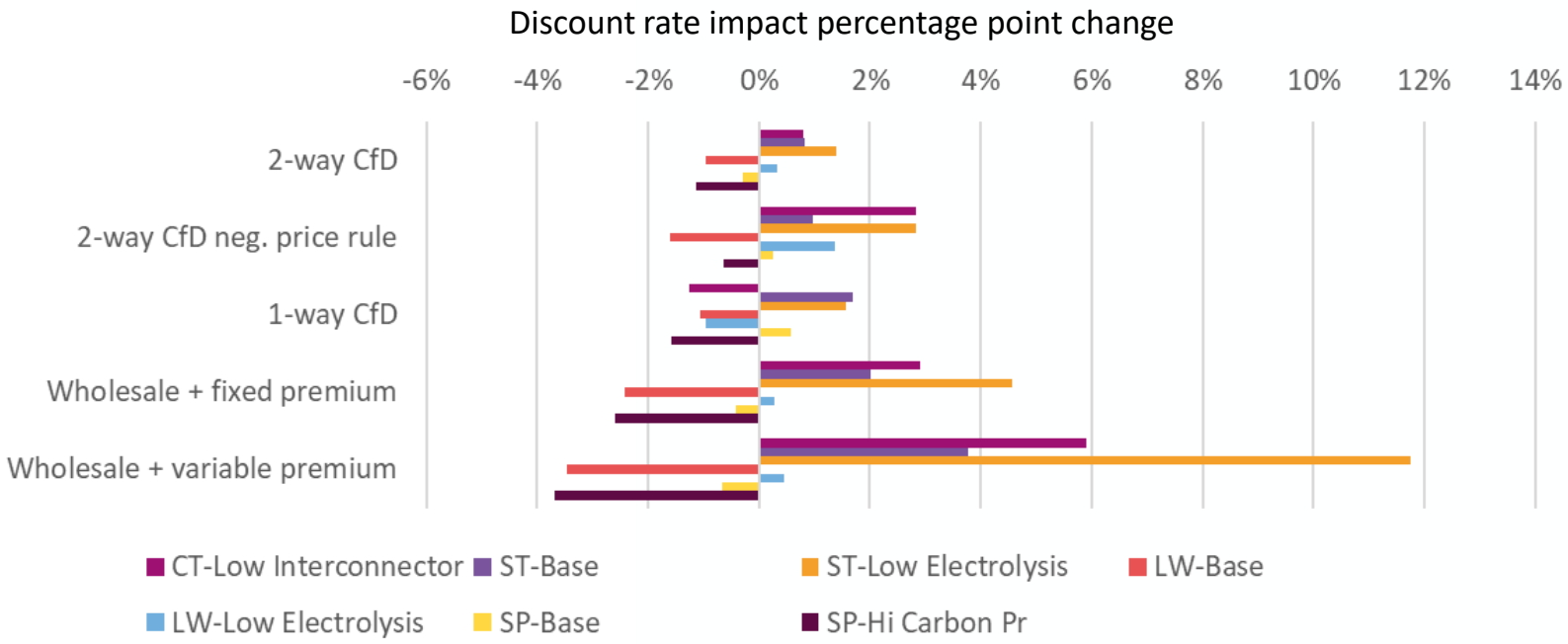
Price cannibalisation in different decarbonised worlds

Main FES scenario / variant
Consumer Transformation (CT) - Base case - Low interconnection
System Transformation (ST) - Base case - Low electrolysis
Leading the Way (LW) - Base case - Low electrolysis
Steady Progression (SP) - Base case - High carbon prices

Figure 1. Price cannibalisation and periods of excess supply in different decarbonisation pathways



Preliminary results



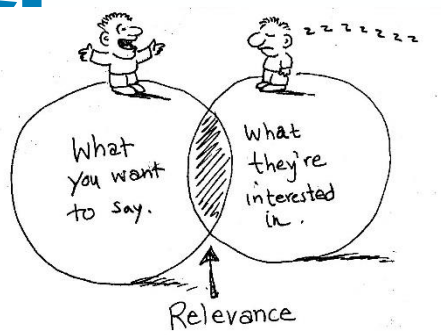
Notes

- The risk premium is the change in discount rate required to equalise the NPV of the expected cashflow with the cashflow in the alternate state of the world
- It is measured relative to the basecase / expected state of the world (i.e. 'System Transformation')

Impact of exposure to risk on the cost of build-out of offshore wind

Cost of capital		Base	+1%	+2%	+3%	+4%	+5%
Levelised cost	£/MWh	43.9	46.4	49.0	51.7	54.6	57.6
Annual generation	TWh	350	350	350	350	350	350
Total annual cost	£bn/yr	15	16	17	18	19	20
Increment rel. to Base	£bn/yr	-	1	2	3	4	5

All projects are not the same: Risk relevant factors



- Construction and technology risk
- Absolute capex/size of project
- Flexibility of operation and price capture capacity
- Hedge or lack thereof on wholesale price risk
- Availability/terms/length of PPA
- Credit worthiness of counterparties
- Policy risk/exposure to changes

So REMA is all about trade-offs

- If we expose market participants to more price risk will they invest in flexibility?
- If that includes locational marginal price risk will they move to areas where the grid is stronger?
- Will this reduce costs more than the inevitable increase in costs created by making the investments more risky?
- Will the exposure to price risk be enough to build significant new sources of flexibility, such as long duration storage, or does this too need an off-market incentive (such as the cap and floor we give to interconnectors)?
- If we mess around with the market arrangements too much will investors go elsewhere
- Can we actually get away from planning and other constraints (the real problem)?

REMA politics – who is in charge? The example of LMP

- Spring of 2022 ESO comes out in **strong support of** locational marginal pricing (LMP)
- But profound implications for market design – a need to move to central despatch
- Ofgem initiated a consultative approach, with call for evidence and workshop last year– as yet **no position has been taken**
- Ofgem's workshop report from October notes the significance of the changes required
- Meanwhile, BEIS REMA consultation ran across the summer, and **no position has been taken (yet)**
- Any change to locational pricing has political impacts – on English regions and on Scotland and Wales
- LMP has potential to **disrupt investment** in renewables by creating new uncertainty over revenues – any large investment can impact network prices for subsequent investment
- Through the REMA decision making grandfathering investment essential, e.g. forthcoming rounds of CfD allocation
- This delays the impact of LMP, perhaps undermining one of the claims for it – to help fix short term constraint ahead of network expansion?

Questions arising

- Should the FSO have competence over decisions with profound political impacts across regions and devolved nations?
- And impacts for generation investment, hence delivery of net zero and energy independence?
- How will the FSO evaluate the mix of *signals* for investment (generation), *planned* investment (networks) against pricing to improve operational efficiency in existing networks?
- Are we sufficiently clear who is in charge?

Conclusions

How strong is the case for change?

Who is in charge?

How are the trade-offs evaluated?

Fundamentally, there may be a tension in achieving least-cost between:

- Static efficiency – reduce risks to reduce cost of capital
- Dynamic efficiency – increase competition, new entrants & innovation

… And we are in a hurry

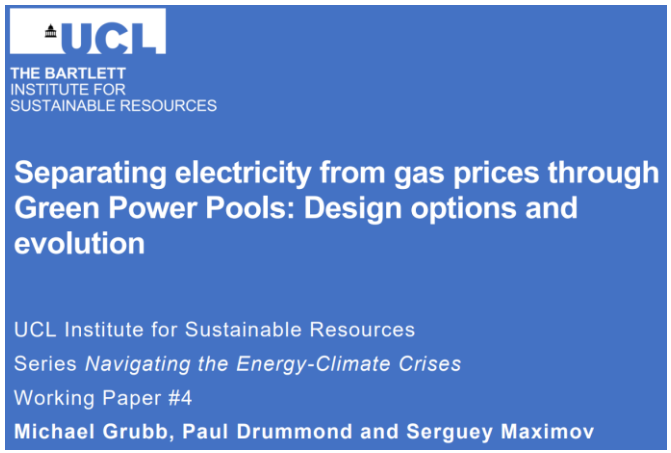
so solutions will be a compromise…

Extra slides/issue

The split market…

‘Split market’ ideas

- 1. The fully split market – Keay and Robinson 2017
- 2. Linking CfDs to a green power pool – Grubb and Drummond 2022
- 3. Issues arising
- 4. Is any of this necessary? De-facto split market

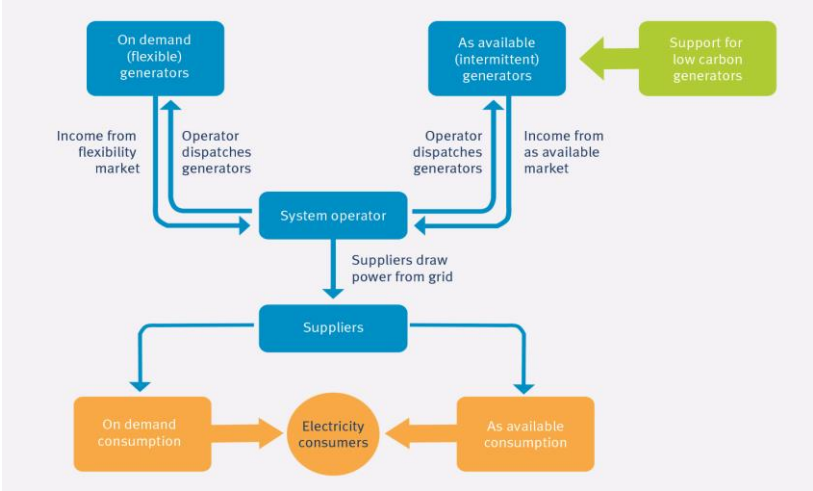


The ‘pure’ split market of Keay and Robinson

Key points/claims/rationale

- Promotes more efficient use of conventional ‘on-demand’ and renewable ‘as-available’ generation by directly exposing these markets to consumers and allowing them to choose between them
- Eventually leads to investments recovered solely from their respective markets
- Allows the overall system to be optimised for consumer preferences - consumers to decide how much to pay for secure electricity supplies
- Enables consumers to choose other methods of securing supplies, such as storage
- Security of supply would in effect be privatised, ESO only responsible for system stability
- **Provides an ‘exit strategy’ for government involvement**

Malcolm and Keay – the Two Market Approach

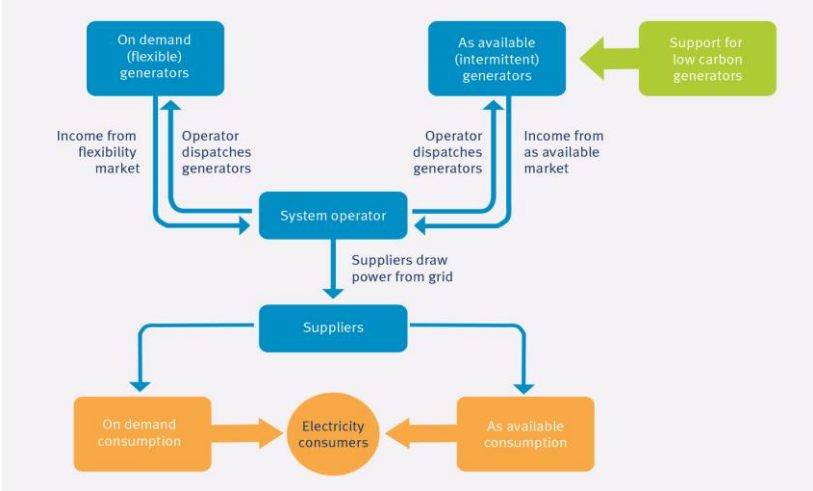


The ‘pure’ split market of Keay and Robinson

Issues not discussed

- Paper is 5 years old and largely conceptual. So…
- Locational pricing and constraint management not explicitly addressed
- They suggest the proposal is compatible with either single buyer or bilateral wholesale market designs
- Predicated on VRE needing subsidy, rather than a world of high cost gas and low cost VRE
- Does not discuss how system stability would be sustained – for example in a long Dunkelflaute
- No discussion/quantification of consumer engagement
- Does not consider equity or political concerns

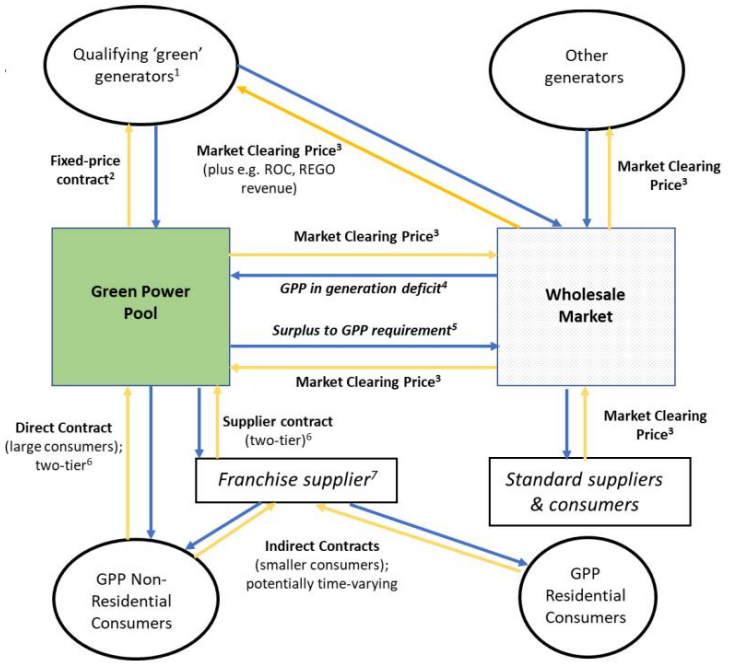
Malcolm and Keay – the Two Market Approach



Pure split markets issues

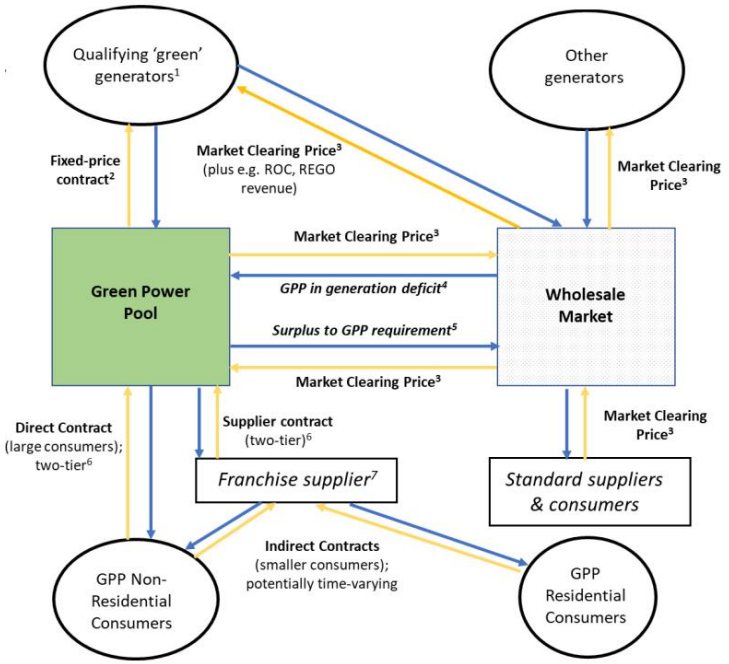
- Consumers would face complex market/responsibility for their own security of supply
- To an extreme – poor consumers choose unreliable electricity that cuts them off when it is cold. Is this a good idea?
- If they don't/can't then how does this differ in any material sense from demand response/ ToU pricing etc?
- Who is writing contracts with whom – suppliers presumably contract for generation but on the basis on unknown levels of demand? Counterparty credibility? Re-risking investment
- Requirement for much more automation than at present and unproven technological advances
- No quantitative modelling of costs and gains
- Radical changes to the regulatory environment will take several years, during which investment could be interrupted
- Is an 'exit strategy' from government intervention a primary policy goal?
- Why? Is it realistic? When has this ever been the case?

Green power pool based on contracts for difference, Mike Grubb et al



- Proposal to continue to provide CfDs to generators but split downstream market
- Explicit goal being to retain benefits of CfDs (cost of capital) but offer low cost power to consumers – an evolution
- Initially re-direct the volume of CfD-derived electricity to two groups of high political and welfare concerns:
- Industrial consumers whose international competitiveness is threatened by GB prices
- 'Fuel poor' domestic households
- Next could come green tariff customers and EV owners, those with heat pumps etc
- Who/how to target is a political choice

Green power pool based on contracts for difference, Mike Grubb et al



- In time, the green power pool operator would purchase renewable and nuclear power generated
- Pool operator offers contracts to consumers based on average cost
- Pool operator buys from conventional market if needed, sells to conventional market if needed
- Over time outside GPP volume reduces. Unclear why. How impacts cannibalisation.
- Proposition does not explicitly engage with locational pricing or detail of CfD design
- Or with structure of residual/ no-GPP market (bilateral or single buyer)

Is any of this really necessary?

- The existing CfD scheme remunerates non-fossil generators on the basis of long-run marginal costs – it is a de-facto split market for generation
- Redirecting CfD paybacks does not require a GPP (Grubb acknowledges)
- Real-time of day wholesale prices are already available to households – albeit not the ability to choose to be cut-off when it is cold and dark
- Larger consumers can already enter into PPAs and interruptible contracts
- How much time do we have to re-imagine markets/pursue Platonic ideals?

What are the most important issues?

- Maintaining and accelerating low carbon generation investment
- Retaining the lowest possible cost of capital
- Bringing forward new sources of flexibility, in particular the bulk energy stores that will be essential for a VRE dominated low carbon system
- Overcoming network constraints and accessing resources through strategic investment
- Overcoming planning constraints
- Bringing prices down for ALL consumers
- Reducing consumption through energy efficiency (last not least)
- Is splitting the market a side-show, a distraction or displacement activity?


Thanks!